



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
2565 PLYMOUTH ROAD
ANN ARBOR, MICHIGAN 48105-2498

November 26, 2003

CCD-03-14 (LDV/LDT/ICI) OFFICE OF
AIR AND RADIATION

Dear Manufacturer:

Subject: CAFE Adjustment Coefficient for 2003 and Later Model Years Passenger Automobiles

This letter is to inform you that the passenger automobile Corporate Average Fuel Economy (CAFE) adjustment "c" factor for the 2003 and later model years is 0.0014. Please use this correction factor in calculating your 2003 and later model years passenger automobile CAFE values.

On July 1, 1985 EPA promulgated final rules which established CAFE adjustments for 1980 and later model year passenger automobiles (50 FR 27127). These adjustments were granted to compensate for the effects of past test procedure changes on fuel economy in order to maintain the stringency of the CAFE standards at their established levels.

The adjustment equation incorporates a humidity correction factor, the "c" factor, which is specific to a model year. The only variable that determines the "c" factor is the EPA National Vehicle and Fuel Emission Laboratory (NVFEL) average humidity within the year. The enclosure to this letter provides the humidity correction factor calculation. In previous model years EPA has provided manufacturers the "c" factor via an annual letter that applied to only a specific model year. However, the historical NVFEL average humidity data shows very minor changes since the 1985 rulemaking and no change in the most recent three years. With the current humidity control capability at NVFEL, EPA expects this consistency to continue, and thus is not expecting the "c" factor to change in the foreseeable future. Consequently, the "c" factor presented in this letter should be used for future model years until further notice. EPA will monitor the humidity levels at our laboratory and in the unlikely event that the "c" factor changes, we will issue a guidance letter with a new factor.

Any questions or comments regarding the CAFE adjustment coefficient should be directed to Mr. Eldert Bontekoe at (734) 214-4442.

Sincerely,

Merrylin Zaw-Mon, Director
Certification and Compliance Division
Office of Transportation and Air Quality

Enclosure

ENCLOSURE

Calculation of the Passenger Automobile CAFE Adjustment Coefficient for the 2003 and Later Model Years

This enclosure presents the calculation of the passenger automobile Corporate Average Fuel Economy (CAFE) adjustment coefficient for the 2003 and later model years. The methodology detailed in the Summary and Analysis of comments (hereafter referred to as the S&A) for the July 1, 1985 CAFE adjustment rulemaking (50 FR 27127) is used to calculate the laboratory humidity coefficient.

Laboratory Humidity Correction Coefficient

$$C_h = S_h(H_{75} - (H_{my} + 5))$$

where

$$\begin{aligned} S_h &= \text{Humidity Sensitivity Coefficient (for 1981 and later model years)} \\ &= -1.9 \times 10^{-4} / \text{grains H}_2\text{O/lb. dry air} \end{aligned}$$

$$\begin{aligned} H_{75} &= \text{Average Humidity in the 1975 model year (as measured by wet bulb psychrometer)} \\ &= 49 \text{ grains H}_2\text{O/lb. dry air} \end{aligned}$$

$$H_{my} = \text{Average Humidity in grains H}_2\text{O/lb. dry air for the model year of interest}$$

Since the humidity sensitivity coefficient and the average humidity in the 1975 model year are known, only the average humidity for the 2002 model year needs to be determined to calculate the 2003 correction coefficient for humidity. The average humidity was established as the average humidity of the EPA laboratory over a calendar year. This average humidity level must, however, be increased by 5 grains H₂O/lb. dry air to make the current humidity measurements (which are taken with a dew point hygrometer) comparable with the 1975 model year measurements (which were taken with a wet bulb psychrometer).

Examination of EPA laboratory test data for the 2002 calendar year showed the average humidity level to be 51.48 grains H₂O/lb. dry air. Using this data, the adjustment 'c' factor was calculated to be .0014.